

Work Order ID 149587

Monday, July 25, 2016 2:37:29 PM

149587

Page 1

Item ID: D2521

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop ***NS2***

Item Name: Individual Bearpaw

Start Date: 8/5/2016 Start Qty: 7.00

7

Cust Item ID:

Required Date: 8/19/2016 Req'd Qty: 7.00

7

Customer:

Reference:

AUG 02 2016

Approvals:

Process Plan:

DAS**21**

Date:

Tooling:

Date:

Run Start

NR1

QC:

9-89

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D2521

Rev J

120

0.00

120

FLOW WATER JET

Waterjet

Memo

0.54

FLOW CNC Waterjet

Cut Blank as per D2521 blank file

130

0.04

130

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.98

HAAS CNC vertical machine #1

1-Inspect material for defects or damage prior to machining
2-Machine as per Folio and Dwg D2521 Identify as D2521
3-Deburr

140

0.00

140

QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.01

Quality Control

DAS**44****9-89****DAS****14****9-89****DAS****44****9-89**

16/08/18

16-08-20

16/08/30
PTO

16-08-20

DQA: dat Date: 09/22/2016



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: R/U Date: SEP 13 2016

Work Order update only ☐

Work Order: <u>149587</u> Part No. <u>D2521</u> NCR No. <u>16-6019</u>		DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☐ Water Jet ☐ Engineering ☐ Machining ☒ Small Fab ☐ Prod. Eng. Coord. ☐ Quality ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Large Fab ☐ Composite ☐ Supplier ☐					
Date: <u>16/08/30</u>		Step #: <u>130</u>		QTY Effective: <u>1</u>			MRB (QSI042) Approval DAS 9 9-89 <u>16-08-31</u>		
Description Work Order Deviation				Disposition				Completed By DAS 14 9-89 <u>16/08/30</u> Lead hand / Supervisor Approval Verification DAS 9 9-89 <u>16-08-31</u> QC / QA Coordinator Approval DAS 9 9-89 <u>16-08-31</u>	
<u>Find contamination in the part.</u> <u>see attached photo.</u>				<u>Scrap destroy.</u>					
Root Cause Environment ☐ No Re-verification ☐ Design ☐ Operator ☐ Doc/Data ☐ Offset/Setup ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☒ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐				FAULT CATEGORY Pressure/Forced ☐ Temperature/Cure ☐ Power Loss/Surge ☐ Positioned Wrong ☐ Bending ☐ Set-up ☐ Folio/Program ☐ Outside Dimensions ☐ Centre Not Concentric ☐ BOM/Route ☐ Grain ☐ Over/Under tolerance ☐ Cracks ☐ Broken/Damage/Defect ☐ Weld ☐ Part Incorrect ☐ Crimp/Kink/Ripple/Wave ☐ Inspection Incomplete/Unqualified ☐ Wrong Stock Pulled ☐ Part Lost/Missing ☐ Cuffs ☐ Contamination ☒ Out of Sequence ☐ Part Moved ☐ Crushing ☐ Countersink ☐ Off-set ☐ Drawing ☐ Heat Treat ☐ Cut Too Short ☐ Misabeled ☐ Finish ☐ Wave/Twist in Tube ☐ Instructions Incomplete/Unclear ☐ Fit/Function ☐ Misread ☐ Marks/Chatter ☐ Drill Holes ☐ Misaligned/off center ☐ Turning Sequence ☐					
				OTHER :					

Work Order ID 149587

Monday, July 25, 2016 2:37:29 PM

149587

Page 2

Item ID: D2521 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Individual Bearpaw
Start Date: 8/5/2016 Start Qty: 7.00 ***7*** Cust Item ID:
Required Date: 8/19/2016 Req'd Qty: 7.00 ***7*** Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start ***NR1***
QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC8- Inspect parts - second check	0.00							
150									
QC	Memo	0.02							
Quality Control									
160	Identify as per dwg & Stock Location: <u>St</u>	0.00							
160									
Packaging	Memo	0.01							
Packaging									
170	QC21- Final Inspection - Work Order Release	0.00							
170									
QC	Memo	0.12							
Quality Control									

1692

8

SEP 07 2016

DAS
6
9-89DAS
21
9-89

SEP 07 2016

DAS
21
9-89

SEP 07 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Monday, July 25, 2016 2:37:29 PM

Page 1

Work Order ID: 149587

149587

Parent Item: D2521

D2521

Parent Item Name: Individual Bearpaw

Start Date: 8/5/2016

Required Date: 8/19/2016

Start Qty: 7.00

Required Qty: 7.00

Comments: IPP Rev:A 08-10-01 New Manufacturing Method JLM Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MUHMWB10		Purchased	No				sf	424.7600		51.57895			

MUHMWB10

UHMW 1" Black - 48"x120" Tivar Mfg.#52480104

2016/08/19

Location

Loc Qty

Loc Code

MAT018

424.76

m134823

83.5

m135013

341.26

60

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

DART AEROSPACE LTD		Work Order: 149587
Description: Bearpaw		Part Number: D2521
Inspection Dwg: D2521	Rev: J	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension			Actual Dimension	Accept	Reject	Method of Inspection	Comments
Dim	Min	Max					
A	0.260	0.266	.260	/		Vern	FK-04
B	0.90	0.96	.930	/		"	"
C	0.27	0.330	.308	/		"	"
D	0.470	0.530	.500	/		"	"
E	21.740	21.760	21.75	/		Tape	FK-05
F	0.72	0.780	.751	/		Vern	FK-04
G	0.35	0.410	.377	/		"	"
H	11.490	11.570	11.50	/		Tape	FK-05
I	3.41	3.47	3.430	/		Vern	FK-04
J	11.790	11.810	11.800	/		Tape	FK-05
K	9.47	9.53	9.50	/		"	"
L	7.190	7.210	7.200	/		Vern	CNC-02
M	6.910	6.970	6.94	/		"	"
N	44.47	44.530	44.50	/		Tape	FK-05
O	6.590	6.650	6.625	/		Vern	CNC-02
P	0.940	0.980	.955	/		Vern	FK-04
Q	18.97	19.03	19.00	/		Tape	FK-05
R	0.350	0.410	.377	/		Vern	FK-04
S	0.740	0.780	.752	/		"	"
T	0.240	0.280	.244	/		"	"
U	0.370	0.410	.391	/		"	"
V	0.740	0.780	.760	/		"	"
W	0.740	0.780	.762	/		"	"

DAS

Measured by: 44 9-89	Audited by: [Signature]	Prototype Approval:	N/A
Date: 16-08-29.	Date: 16-9-2	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	03.09.22	New Issue P/O D205-564-011 & D430-688-011	KJ/RF	
B	05.06.15	Dimensions and tolerances changed	KJ/RF	
C	06.08.31	Dimensions updated per D2521 Rev. J	KJ/JLM [Signature]	[Signature]

DART

DESIGN	<i>#</i>	DRAWN BY	<i>C.B.</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>CP</i>	APPROVED	<i>[Signature]</i>	DRAWING NO.	REV. J
				D2521	SHEET 1 OF 3
DATE	06.07.28			TITLE	SCALE
				205 BEARPAW	NTS
A	95.11.28	NEW ISSUE			
B	96.01.11	SHOW BENDING MOVE HOLES			
C	96.01.29	ADJUST HOLE LOCATION FOR TOOLING			
D	96.05.14	ADJUSTED BEAR PAW THICKNESS			
E	96.12.18	43.500 WAS 46.750			
F	97.05.07	ADDED REAR POCKET, MOVED HOLES			
G	98.08.06	ADD C'BORE AND CHAMFER EDGES			
H	03.01.30	CHANGE GEOMETRY FOR RUN-ON LDG.			
I	05.05.20	REMOVE BEND; CHANGE TOLERANCES			
J	06.07.28	CHANGE FOR FLOAT SKIDTUBE			

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 146587 mcs
16-08-02

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DART

DESIGN

DRAWN BY

DART AEROSPACE LTD

HAWKESBURY, ONTARIO, CANADA

CHECKED

APPROVED

DRAWING NO.

REV. J

SHEET 2 OF 3

DATE

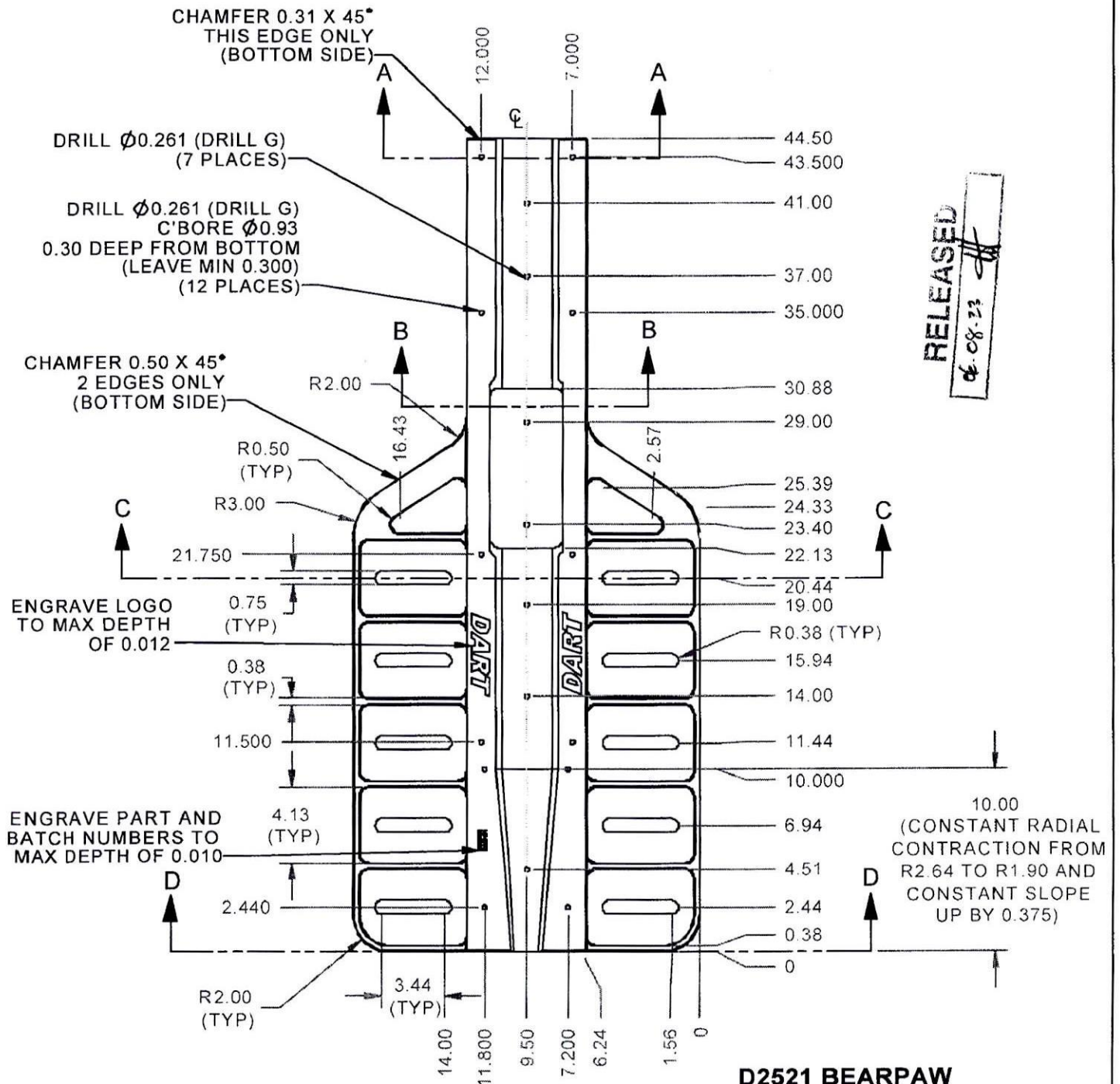
TITLE

SCALE

06.07.28

205 BEARPAW

1:8

**D2521 BEARPAW****NOTES:**

- 1) MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689, 1.000 THICK (MACHINE TO 0.950)
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.030
- 6) PART IS SYMMETRIC ABOUT $\bar{C}$

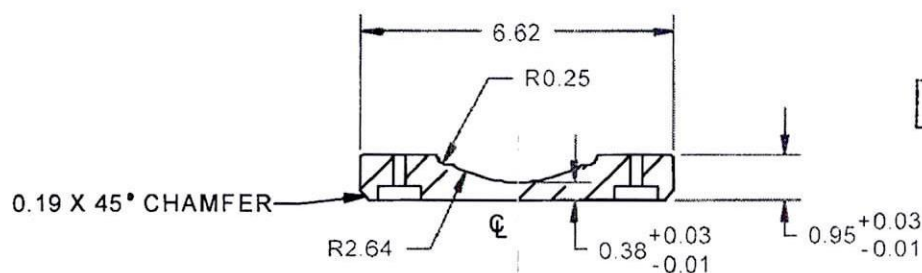
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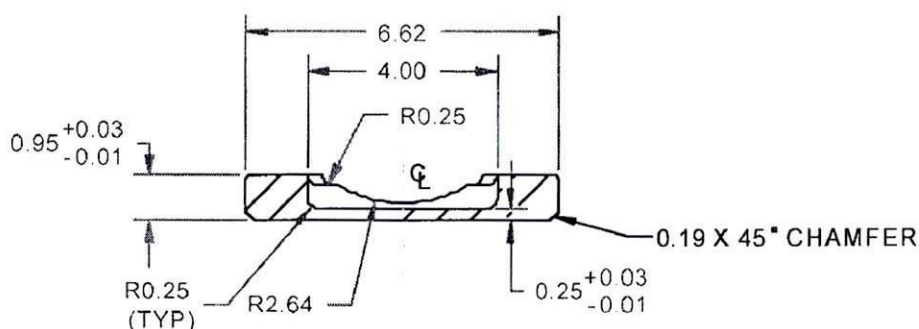
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		HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. J
		D2521	SHEET 3 OF 3
DATE	TITLE		SCALE
06.07.28	205 BEARPAW		1:4

RELEASED

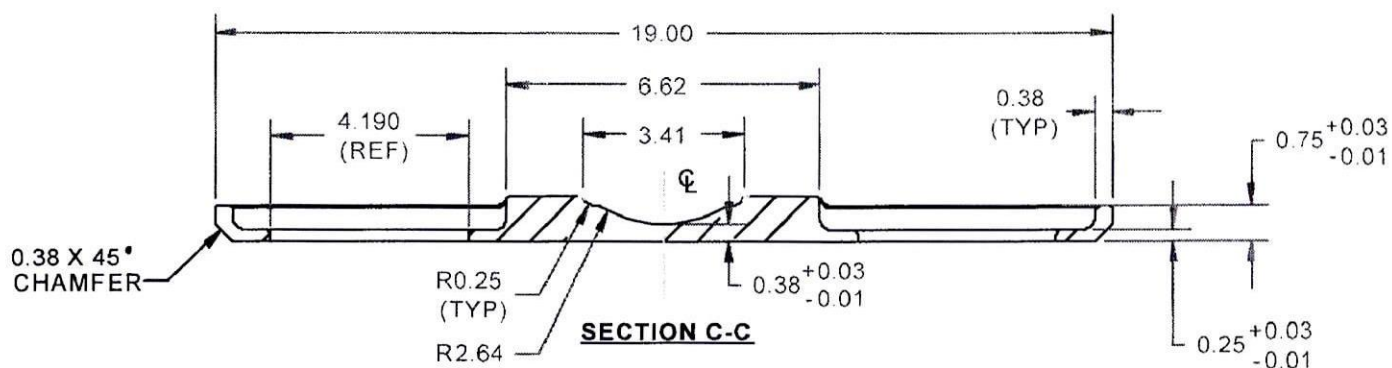
06.08.23



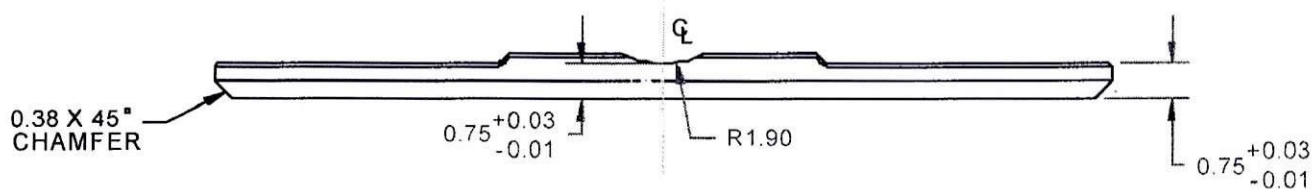
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

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